



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,059	08/22/2003	Mark H. Crane	0717.2037-001	9713

21005 7590 01/08/2008  
HAMILTON, BROOK, SMITH & REYNOLDS, P.C.  
530 VIRGINIA ROAD  
P.O. BOX 9133  
CONCORD, MA 01742-9133

EXAMINER	
PIZIALI, JEFFREY J	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
01/08/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/647,059	Applicant(s) CRANE ET AL.	
	Examiner Jeff Piziali	Art Unit 2629	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 6 February 2004. These drawings are acceptable.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 1 recites the limitation "*the line of sight*" in line 12 and the limitation "*the orientation*" in line 17. There is insufficient antecedent basis for either limitation in the claim.

5. The term "*normal distance vision*" in claim 1 is a relative term which renders the claim indefinite. The term "*normal distance vision*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what precisely constitutes "*normal distance vision*," as instantly claimed. In such a case, what qualifies as "*abnormal distance vision*"? Does "normal distance vision" mean to signify a certain distance from the user? Would a mile or ten feet qualify?

6. Claim 9 recites the limitation "*the orientation*" in line 5. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 11 recites the limitation "*the line of sight*" in line 12 and the limitation "*the orientation*" in line 17. There is insufficient antecedent basis for either limitation in the claim.

8. The term "*normal distance vision*" in claim 11 is a relative term which renders the claim indefinite. The term "*normal distance vision*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what precisely constitutes "*normal distance vision*," as instantly claimed. In such a case, what qualifies as "*abnormal distance vision*"? Does "*normal distance vision*" mean to signify a certain distance from the user? Would a mile or ten feet qualify?

9. Additionally, the term "*suitable viewing*" in claim 11 is a relative term which renders the claim indefinite. The term "*suitable viewing*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It would be unclear to one having ordinary skill in the art what precisely constitutes "*suitable viewing*," as instantly claimed. In such a case, what qualifies as "*unsuitable viewing*"? Does "*suitable viewing*" mean to

Art Unit: 2629

signify a certain level of display brightness or size or resolution?

10. Claim 19 recites the limitation "*the orientation*" in line 5. There is insufficient antecedent basis for this limitation in the claim.

11. Remaining claims 2-8, 10, 12-18, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by *Ichikawa et al* (US 5,266,930 A).

Regarding claim 1, Ichikawa discloses a headgear system comprising: headgear [Fig. 1; 5] with an upper headgear portion for being worn on a user's head and a lower headgear portion extending from the upper headgear portion for extending forwardly relative to a lower front portion of the user's head and below the user's eyes (see Fig. 1; Column 8, Lines 6-59); and a display assembly [Fig. 1; 11] mounted inside the headgear (see Fig. 1) to the lower headgear portion for being located below at least one of the user's eyes so as not to obstruct the user's vision (see Column 8, Line 60 - Column 9, Line 9), the display assembly [Fig. 1; 14] having an

Art Unit: 2629

adjustable mount [Fig. 2; 15-21] and a viewing display mounted to the adjustable mount with direct viewing optics [Fig. 1; 6] facing the user and positioned inward from the lower headgear portion for displaying information, the direct viewing optics being located on the adjustable mount in a position for being below the user's eyes so that for normal distance vision (wherein the direct viewing optics [Fig. 1; 6] are connected to the adjustable mount [Fig. 2; 15-21] via the headgear [Fig. 1; 5]), the line of sight passes over the direct viewing optics (see Fig. 1), the information being visible when said at least one of the user's eyes looks downwardly at the viewing display (see Fig. 1; eyesight line) where the direct viewing optics face and are substantially inline with at least one of the user's eyes downwardly looking eyes, the display assembly being configured to be adjustable by the user while the headgear system is worn by the user for changing the orientation of the viewing display and the direct viewing optics (see Figs. 2 & 3; Column 9, Lines 10-58).

Regarding claim 2, Ichikawa discloses the headgear is a helmet [Fig. 1; 5], and the lower headgear portion is a face bar (see Fig. 1; Column 8, Lines 6-14).

Regarding claim 3, Ichikawa discloses the display assembly includes at least one rotatable joint [Fig. 2; 21] having frictional resistance so that the joint remains in a particular orientation until moved by the user (see Column 9, Lines 28-58).

Regarding claim 4, Ichikawa discloses the viewing display is sized for viewing by one of the user's eyes when said one of the user's eyes looks downwardly (see Fig. 1; Column 8, Lines 6-14).

Regarding claim 5, Ichikawa discloses the viewing display displays images which are focused to appear to be at optical infinity (see Fig. 1; Column 8, Lines 6-14).

Regarding claim 6, Ichikawa discloses the display assembly has a rotatable horizontal axis for allowing the viewing display to be tilted upwardly and downwardly, and a rotatable vertical axis for allowing the viewing display to rotate about the vertical axis (see Figs. 2 & 3; Column 9, Lines 10-22 -- wherein, it is further noted that if the user spun in place, the viewing display would also rotate about a vertical axis relative to the ground).

Regarding claim 7, Ichikawa discloses the display assembly comprises: a base [Fig. 2; 16] for mounting to the face bar of the helmet, the base having a circular recess that is connected to an entrance slot (see Fig. 4); a rotatable member [Fig. 4; 19] having at least a partial circular portion that has a snap fit into the circular recess of the base through the entrance slot, the rotatable member being rotatable within the circular recess about the vertical axis; and two side members [Fig. 2; 17] extending from the rotatable member, the display being rotatably mounted between the side members along the horizontal axis (see Column 9, Lines 10-58).

Regarding claim 8, Ichikawa discloses the display assembly [Figs. 32 & 34; 737] is mounted to the face bar of the helmet for being below a first eye [Figs. 32 & 34; E<sub>R</sub>] of the user, the headgear system further comprising a second base [Figs. 32 & 34; 738] mounted to the face bar of the helmet for being below a second eye [Figs. 32 & 34; E<sub>L</sub>] of the user to allow the user to select the position of at least one display by snap fitting an associated rotatable member into the desired base (see Column 8, Lines 3-14 & 40-61; as well as Column 19, Lines 9-17).

Regarding claim 9, this claim is rejected by the reasoning applied in rejecting claims 1 and 6; furthermore, Ichikawa discloses the display assembly having a first rotatable joint [Figs. 2-3; 18] that is rotatable about a rotatable horizontal axis for allowing the viewing display to be tilted upwardly and downwardly [see Fig. 2; wherein the illustrated left-to-right adjustment motion arrow will result in moving the holographic image up-or-down on the helmet visor], and a second rotatable joint [Figs. 2-3; 20] that is rotatable about a rotatable vertical axis for allowing the viewing display to rotate about the vertical axis [see Fig. 3; wherein the illustrated left-to-right adjustment motion arrow will result in display rotation about a vertical axis] (see Column 9, Lines 10-22).

Regarding claim 10, this claim is rejected by the reasoning applied in rejecting claim 7.

Regarding claim 11, this claim is rejected by the reasoning applied in rejecting claim 1.

Regarding claim 12, this claim is rejected by the reasoning applied in rejecting claim 2.



Regarding claim 13, this claim is rejected by the reasoning applied in rejecting claim 3.

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claim 4.

Regarding claim 15, this claim is rejected by the reasoning applied in rejecting claim 5.

Regarding claim 16, this claim is rejected by the reasoning applied in rejecting claim 6.

Regarding claim 17, this claim is rejected by the reasoning applied in rejecting claim 7.

Regarding claim 18, this claim is rejected by the reasoning applied in rejecting claim 8.

Regarding claim 19, this claim is rejected by the reasoning applied in rejecting claims 1 and 6.

Regarding claim 20, this claim is rejected by the reasoning applied in rejecting claim 7.

***Response to Arguments***

14. Applicants' arguments filed 17 October 2007 have been fully considered but they are not persuasive.

The applicants contend the cited prior art of **Ichikawa et al (US 5,266,930 A)**, "*does not teach or suggest 'a display assembly mounted inside the headgear to the lower headgear portion for being located below at least one of the user's eyes so as not to obstruct the user's vision, the display assembly having an adjustable mount and a viewing display mounted to the adjustable mount with direct viewing optics facing the user and positioned inward from the lower headgear portion for displaying information, the direct viewing optics being located on the adjustable mount in a position for being below the user's eyes so that for normal distance vision, the line of sight passes over the direct viewing optics, the information being visible when said at least one of the user's eyes looks downwardly at the viewing display where the direct viewing optics face and are substantially inline with said at least one of the user's downwardly looking eyes', as recited in base Claim 1, as amended, and similarly in Claim 11, as amended, or 'the display assembly having a first rotatable joint that is rotatable about a rotatable horizontal axis for allowing the display to be tilted upwardly and downwardly, and a second rotatable joint that is rotatable about a rotatable vertical axis for allowing the display to rotate about the vertical axis' as recited in Claims 9 and 19, as amended. Furthermore, Ichikawa does not teach or suggest 'a rotatable member having at least a partial circular portion that has a snap fit into the circular recess of the base through the entrance slot, the rotatable member being rotatable within the circular recess about the vertical axis', as recited in Claims 7, 10, and similarly in Claims 17 and 20. As previously pointed out, the display unit 11 and disk 20 in Ichikawa are rotatable about two horizontal axes but no vertical axes. Finally, Ichikawa does not teach or suggest 'a second base mounted to the face bar of the helmet for being below a second eye of the user to allow the user to select the position of at least one viewing display by snap fitting an associated*

Art Unit: 2629

*rotatable member into the desired base' as recited in Claim 8, and similarly in Claim 18"* (see Pages 10-11 of the 'Response to Notice of Non-Compliant Amendment' filed 17 October 2007). However, the examiner respectfully disagrees.

The applicants allege that Ichikawa's user does not view images by looking at the display unit [Fig. 1; 11], but instead, the user has to look at the wind shield [Fig. 1; 6], where the images are projected, and which forms the viewing display. However, Ichikawa states, "*a hologram plate is placed on the shield [Fig. 1; 6] of the helmet so that a display image from the liquid crystal element [Fig. 1; 12] may be projected upon the hologram plate so as to create a hologram image visually observable by a wearer of the helmet [Fig. 1; 5]*" (see Column 9, Lines 4-9). As the hologram plate provides a visual representation of information for the user, one skilled in the art would appropriately consider it as constituting "a display." Furthermore, there is nothing during normal operation inhibiting Ichikawa's user from looking downwardly at the display assembly [Fig. 1; 11] itself, if he or she so desires (regardless of whether the image is upside-down or not -- the user will still see the resultant displayed image).

As such, Ichikawa discloses a display assembly [Fig. 1; 14] having an adjustable mount [Fig. 2; 15-21] and a viewing display mounted to the adjustable mount with direct viewing optics [Fig. 1; 6] facing the user and positioned inward from the lower headgear portion for displaying information, the direct viewing optics being located on the adjustable mount in a position for being below the user's eyes so that for normal distance vision (wherein the direct viewing optics [Fig. 1; 6] are connected to the adjustable mount [Fig. 2; 15-21] via the headgear [Fig. 1; 5]), the

Art Unit: 2629

line of sight passes over the direct viewing optics (see Fig. 1), the information being visible when said at least one of the user's eyes looks downwardly at the viewing display (see Fig. 1; eyesight line) where the direct viewing optics face and are substantially inline with at least one of the user's eyes downwardly looking eyes, the display assembly being configured to be adjustable by the user while the headgear system is worn by the user for changing the orientation of the viewing display and the direct viewing optics (see Figs. 2 & 3; Column 9, Lines 10-58).

The applicants argue, "*The windshield 6 forms the viewing display and is positioned outward relative to the lower portion of helmet 5 and must be lowered into position in front of the user's eyes for viewing*" (see Page 9 of the 'Response to Notice of Non-Compliant Amendment' filed 17 October 2007). However, here the examiner also respectfully responds that Ichikawa's windshield [Fig. 1; 6] is on an adjustable mount, which allows the user to raise and lower the windshield (i.e., the direct viewing optics).

Ichikawa also states, "The adjusting disk [Figs. 2-3; 20] can be manually moved forward or backward... or left or right so as to rock the display unit [Fig. 1; 11]" (see Column 9, Lines 28-30). Furthermore, it is noted that although the wind shield [Fig. 1; 6] may arguably remain stationary, the actual projected image (which qualifies as "a display") most certainly will change and be adjustable, depending upon left/right and forward/backward adjustments made to the display unit [Fig. 1; 11].

Art Unit: 2629

As such, Ichikawa discloses the display assembly having a first rotatable joint [Figs. 2-3; 18] that is rotatable about a rotatable horizontal axis for allowing the viewing display to be tilted upwardly and downwardly [see Fig. 2; wherein the illustrated left-to-right adjustment motion arrow will result in moving the holographic image up-or-down on the helmet visor], and a second rotatable joint [Figs. 2-3; 20] that is rotatable about a rotatable vertical axis for allowing the viewing display to rotate about the vertical axis [see Fig. 3; wherein the illustrated left-to-right adjustment motion arrow will result in display rotation about a vertical axis] (see Column 9, Lines 10-22).

Additionally, Ichikawa discloses a rotatable member [Fig. 4; 19] having at least a partial circular portion that has a snap fit into the circular recess of the base through the entrance slot, the rotatable member being rotatable within the circular recess about the vertical axis (see Column 9, Lines 10-58).

And lastly, Ichikawa discloses a second base [Figs. 32 & 34; 738] mounted to the face bar of the helmet for being below a second eye [Figs. 32 & 34; E<sub>L</sub>] of the user to allow the user to select the position of at least one display by snap fitting an associated rotatable member into the desired base (see Column 8, Lines 3-14 & 40-61; as well as Column 19, Lines 9-17).

By such reasoning, rejection of the claims is deemed proper, necessary, and thereby maintained at this time.

*Conclusion*

15. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2629

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeff Piziali  
2 January 2008